LISTING OF THE CLAIMS:

This listing of claims will replace all prior listings of claims in the application:

Claims 1-24. (Canceled).

25. (new) A method for optical excitation via a two-color (two-photon) absorption process comprising:

optically pumping a Raman shifter by a laser wherein at least one mirror and a lens direct a pump beam produced by the laser into a Raman cell;

adjusting a pump beam diameter of the pump beam by a laser polarizer and a diaphragm;

collimating Raman outputs by a lens-diaphragm system and passed through at least one dichroic mirror that sequentially diverts the said Raman outputs to a first beam dump and a second beam dump;

dispersing a first Raman output S1 and a second Raman output S2 from the Raman shifter by a first and a second Pellin-Broca prisms to generate two separate confocal excitation beams;

varying excitation energies of the two confocal excitation beams by polarizers;

directing the two confocal excitation beams to a sample by mirrors; and

detecting an emitted light or an optical change from a sample.

26. (new) The method as in Claim 25, wherein the Raman cell has a Raman medium therein that is hydrogen gas or mixture of hydrogen with other gases.

27. (new) The method as in Claim 25, wherein the sample has a distinctive luminescence emission that is fluorescence or phosphorescence.

28. (new) The method as in Claim 25, wherein the optical change from the sample is temperature, chromatic surface reflectance, electrical conductance, or refractive index.

29. (new) The method as in Claim 25, wherein the sample has an emitted luminescence, surface reflected light or refractive index change that is detected using a CCD camera, photomultiplier tube, or photodiode.

30. (new) The method as in Claim 25, wherein the sample has an excitation light-induced change in electrical conductance or sample temperature that is measured using voltmeter or current meter.

31. (new) The method as in Claim 25, wherein the sample is moved a predetermined distance and in a predetermined number of times to create a multitude of representations of the excitation lights.